

# PHP

## functions

How Web Applications interact with  
server side databases

### User defined functions

Useful for pieces of code that we use to reuse

```
function name(args){  
    ...code for function  
  
    return arg;  
}
```

Pass values into the function here

Return value out of the function here

### User defined functions

Useful for pieces of code that we use to reuse

```
function name(args){  
    ...code for function  
  
    return arg;  
}
```

Pass values into the function here

Return value out of the function here

ONLY ONE!

## Example

### simple multiplication

```
function multiply($number1, $number2){  
    $result=$number1*$number2;  
    return($result);  
};
```

```
$num1=3;  
$num2=10;  
  
$answer=multiply($num1,$num2);
```

## Server side scripting and databases

### How Web Applications interact with server side databases

mySQL - <http://www.mysql.com/>



The MySQL website homepage features a top navigation bar with links for Home, Products, Services, Partners, Community, Customers, Why MySQL?, News & Events, About, and How to Buy. It includes a search bar, login/register links, and language selection buttons for English, French, German, Japanese, and Italian. The main content area highlights "MySQL Enterprise Unlimited" with a call to action to "Buy Now". It also features sections for "Free Web Seminars", "MySQL Training", and "MySQL Community Server". A sidebar on the left provides news, documentation, and download links. A banner at the bottom for Audemars Piguet's "CHANGING TIMES AWARDS" is visible.

## mySQL

Open Source database, issued under a dual commercial license as well

Rather than just being one program, actually consists of many separate components

... if doing this on your own machine...

Aim to download a complete pack containing apache, PHP and mySQL (XAMPP pc or MAMP mac)

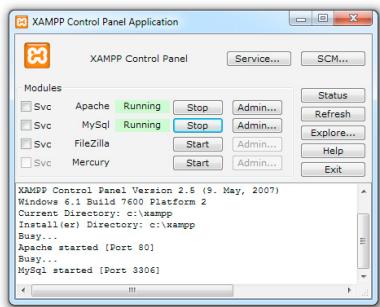
## mySQL

mysqld	database process that runs in the background
mysqladmin	command line style admin control
mysql	SQL processor

Lots of other components exist, typically in /bin  
/MAMP/Library/bin in MAMP

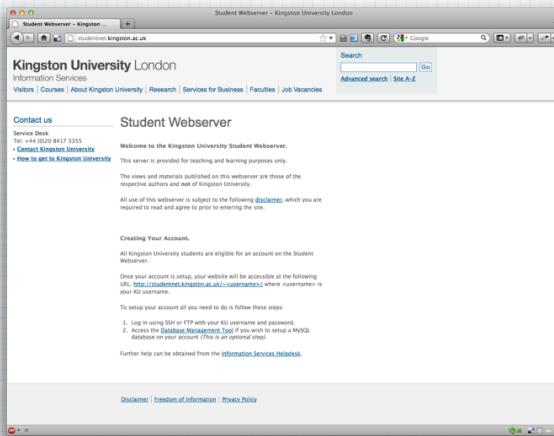
## mySQL - local

Start the database process in the background



## mySQL - dedicated server

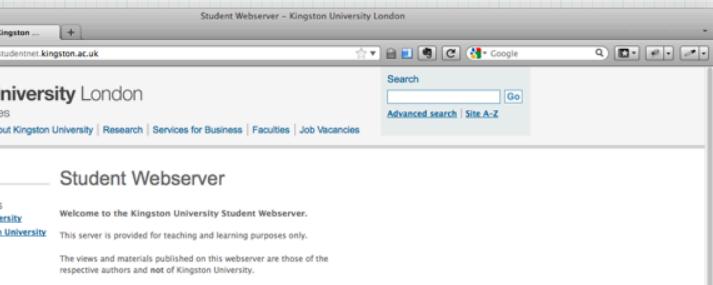
Use whatever interface is supplied to create a DB



## mySQL - dedicated server

Use whatever interface is supplied to create a DB

[studentnet.kingston.ac.uk](http://studentnet.kingston.ac.uk)



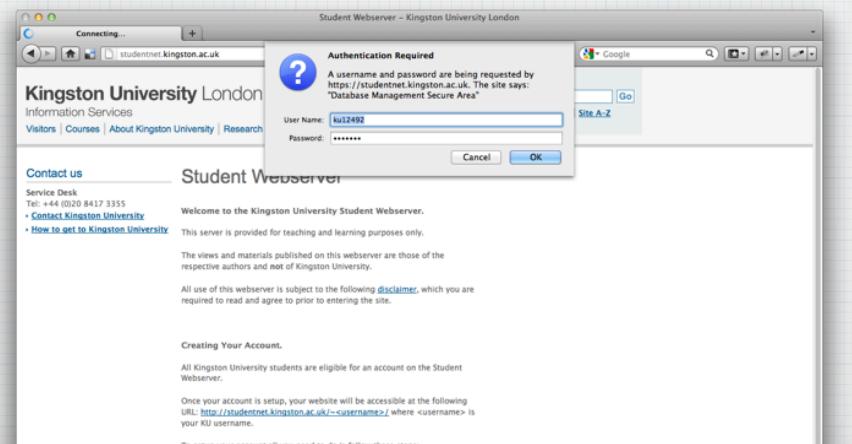
## mySQL - dedicated server

Use whatever interface is supplied to create a DB

**Creating Your Account.**  
All Kingston University students are eligible for an account on the Student Webserver.  
  
Once your account is setup, your website will be accessible at the following URL: [http://studentnet.kingston.ac.uk/~<username>/](http://studentnet.kingston.ac.uk/~<username>), where <username> is your KU username.  
  
To setup your account all you need to do is follow these steps:  
1. Log in using SSH or FTP with your KU username and password.  
2. Access the [Database Management Tool](#) if you wish to setup a MySQL database on your account (*This is an optional step*).  
  
Further help can be obtained from the [Information Services Helpdesk](#).

## mySQL - dedicated server

Use whatever interface is supplied to create a DB



## mySQL - dedicated server

Use whatever interface is supplied to create a DB

### Database Management

Through this interface you can manage the MySQL database associated with your account on the Studentnet Web Server.

Create MySQL Database

Database Name:

Username:

Database Password:

Confirm Password:

**Create Database**

Keep a note of these values

DON'T use your normal password

## mySQL - dedicated server

Use whatever interface is supplied to create a DB

### Database Management

The database db\_ku12492 has been successfully created.

You can now access the database using the following connection parameters:

- Database Host: studentnet.kingston.ac.uk
- Port: 3306
- Username: ku12492
- Password: As provided in the previous form

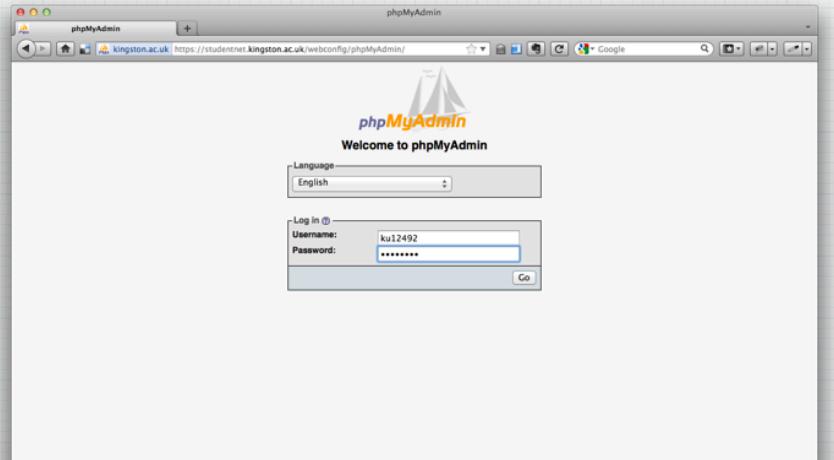
You can now:

1. Go back to the [Database Management Tool](#)
2. Manage your database with [phpMyAdmin](#)
3. Visit your [Student Website](#)? (You will need to have logged in to the Student Webserver for this to be available)

Keep a note of these values

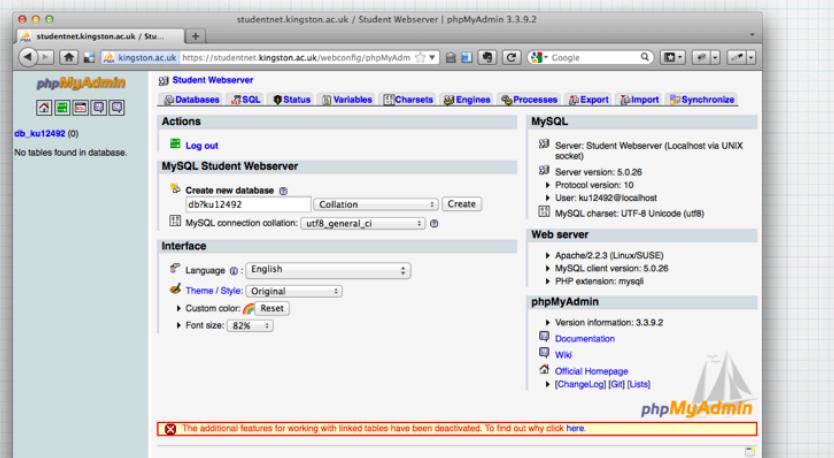
## phpMyAdmin

Use a web interface to setup DBs, tables



## phpMyAdmin

Use a web interface to setup DBs, tables



## phpMyAdmin - database setup at kingston

One database created by the setup process

db\_kxxxxxxxxxx

On your own machine create a database and keep a note of the name (for later)

## To create a table

Click on structure, name table and number of fields

studentnet.kingston.ac.uk / Student Webserver / db\_ku12492 | phpMyAdmin 3.3.9.2  
Student Webserver > db\_ku12492  
Structure SQL Search Query Export Import Designer Operations  
No tables found in database.  
Create new table on database db\_ku12492  
Name: emp Number of fields: 3 Go

## To create a table

Add fields ...

studentnet.kingston.ac.uk / Student Webserver / db\_ku12492 / emp | phpMyAdmin 3.3.9.2  
Field Type Length/Values Default Collation Attributes Null Index AUTO\_INCREMENT Comments MIME type Brower transformation Transformation options  
Table comments: Storage Engine: MyISAM Collation:  
Save Or Add 1 field(s) Go  
<sup>1</sup> If field type is "enum" or "set", please enter the values using this format: 'a','b','c'...  
<sup>2</sup> If you ever need to put a backslash (\") or a single quote ('') amongst those values, precede it with a backslash (for example '\xyz' or 'a\b').  
<sup>3</sup> For default values, please enter just a single value, without backslash escaping or quotes, using this format: a

## Alternative - creating a table using the DDL/SQL

studentnet.kingston.ac.uk / Student Webserver / db\_ku12492 / emp | phpMyAdmin 3.3.9.2  
Student Webserver > db\_ku12492 > emp  
Browse Structure SQL Search Insert Export Import Operations  
Run SQL query/queries on database db\_ku12492:  
CREATE TABLE emp (id INT, name VARCHAR(50), salary DECIMAL(10,2))  
Bookmark this SQL query: Let every user access this bookmark Replace  
[ Delimiter : ] Show this query here again

## Alternative - creating a table using the DDL

### Syntax

```
create table tablename (
    fieldname type,
    fieldname type,
    ...);
```

Here used to create a table called emp

```
create table emp(empno int, ename char(255), sal int);
Query OK, 0 rows affected (0.06 sec)
```

emp	empno	int
	ename	char
	sal	int

## sql - inserting records using the DML

### Syntax

```
insert into table [(columnname, columnname, ...)]
    values (value, value,...)
```

Here used to insert a record into emp

```
insert into emp (empno,ename,sal) values (120, "SMITH",
22000);
```

## sql - querying the database using the DQL

### Syntax

```
select * or expression
from relations
[where expression]
```

Here used to show all rows in emp

```
select * from emp;

+-----+-----+-----+
| empno | ename | sal   |
+-----+-----+-----+
| 120   | SMITH | 22000 |
+-----+-----+-----+
1 row in set (0.00 sec)
```

## sql - running many SQL lines

### SQL statements separated by semicolons

```
insert into emp (empno,ename,sal) values (121, "JONES", 23000);
insert into emp (empno,ename,sal) values (122, "AVERY", 22500);
insert into emp (empno,ename,sal) values (124, "MITCHELL", 26000);
insert into emp (empno,ename,sal) values (127, "WEBB", 22000);
insert into emp (empno,ename,sal) values (129, "TENNENT", 22000);
insert into emp (empno,ename,sal) values (130, "RUSSELL", 25000);
```

## Connecting and using mySQL from PHP

### PHP provides many mySQL specific functions

<code>mysql_connect</code>	Open a link/connection to a mysql database
<code>mysql_select_db</code>	Choose a specific database on a mySQL server
<code>mysql_query</code>	run an SQL statement on an opened database
<code>mysql_fetch_array</code>	process a result set
<code>mysql_close</code>	Close a mySQL connection

## Opening a connection to a mysql server

### Use `mysql_connect`

`mysql_connect` (PHP 4, PHP 5)

Open a connection to a MySQL Server

#### Description

`resource mysql_connect ( [string $server [, string $username [, string $password [, bool $new_link [, int $client_flags]]]]] )`

**Opens or reuses a connection to a MySQL server.**

## Opening a connection to a mysql server

### Use `mysql_connect`

```
<?php  
// we connect to example.com and port 3307  
$link = mysql_connect('example.com:3307', 'user5', 'qwerty5');  
  
echo 'Connected successfully';  
mysql_close($link);
```

Opens a connection to the mysql server on  
example.com:3307, using user5 with password  
qwerty5

## Local version

### To connect to the local mysql database - mamp

```
<?php  
// Create connection  
$link = mysql_connect('localhost:8889', 'root', 'root');  
  
echo 'Connected successfully';  
mysql_close($link);  
?>
```

Demo

## Kingston version

### To connect to the local mysql database - mamp

```
<?php  
// Create connection  
$link = mysql_connect('studentnet.kingston.ac.uk:3306', 'kxxxx', 'password');  
  
echo 'Connected successfully';  
mysql_close($link);  
?>
```

## Local version

We can test \$link to see if the connection works .. this example will fail ...

```
<?php
// Create connection
$link = mysql_connect('studentnet.kingston.ac.uk:3306', 'kxxxx', 'missing');
if (!$link) {
    die('Could not connect: ' . mysql_error());
}
echo 'Connected successfully';
mysql_close($link);
?>
```

\$link is only really used for testing the connection and for closing the connection - \$link is of type resource - a built in PHP type for this kind of connection

## Select a particular database on a mysql server

Use mysql\_select\_db

mysql\_select\_db (PHP 4, PHP 5)

Select a MySQL database

### Description

bool mysql\_select\_db ( string \$database\_name [, resource \$link\_identifier] )

Sets the current active database on the server that's associated with the specified link identifier. Every subsequent call to mysql\_query() will be made on the active database.

Opens a distinct connection to a particular named database on the previously opened mysql server

## Select a particular database on a mysql server

Use mysql\_select\_db

```
<?php
// we connect to example.com and port 3307
$link = mysql_connect('example.com:3307', 'user5', 'qwerty5');
echo 'Connected';

$db_selected = mysql_select_db('foo', $link);

mysql_close($link);
```

Opens a connection to the database foo, using the \$link resource

## MAMP version

To open the empdb database

```
<?php
// we connect to localhost
$link = mysql_connect('localhost:8889', 'root', 'root');
echo 'Connected';

$db_selected = mysql_select_db('db_kxxxxxxxx', $link);
print "Opened database";

mysql_close($link);
?>
```

Demo

## Kingston version

To open the empdb database

```
<?php
// we connect to localhost
$link = mysql_connect('studentnet.kingston.ac.uk:3306', 'xxxxx', 'missing');
echo 'Connected';

$db_selected = mysql_select_db('db_kxxxxxxxx', $link);
print "Opened database";

mysql_close($link);
?>
```

Running a SQL statement against the database

Use `mysql_query`

`mysql_query` (PHP 4, PHP 5)

Send a MySQL query

Description

`resource mysql_query ( string $query [, resource $link_identifier] )`

`mysql_query()` sends an unique query (multiple queries are not supported) to the currently active database on the server that's associated with the specified `link_identifier`.

Runs an SQL statement against the opened DB

## Running a SQL statement against the database

### Use `mysql_query`

```
$result = mysql_query('insert into foo (field1, field2, field3) values (120, 2000, 22000)' );
```

Runs the SQL query - if DDL or DML the result will indicate whether the query ran successfully or not (bool)

## Local version

### Use `mysql_query`

```
$result = mysql_query('insert into emp (empno, ename, sal) values (120, "WALKER", 22000)' );
```

This inserts a single record (or fails)

## To close a database connection

### Use `mysql_close`

`mysql_close` (PHP 4, PHP 5)

Close MySQL connection

#### Description

`bool mysql_close ( [resource $link_identifier] )`

`mysql_close()` closes the non-persistent connection to the MySQL server that's associated with the specified link identifier. If `link_identifier` isn't specified, the last opened link is used.

Closes the connection and releases the resources

## Local version

### To close the empdb database

```
<?php  
// we connect to localhost  
$link = mysql_connect('localhost:8889', 'root', 'root');  
  
....  
  
mysql_close($link);  
?>
```